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EDITORIAL NOTES.

GEORGE HERBERT LOCKE.

It seems but a short time since Cecil Rhodes died and the educational world was stirred by the world-scholarship plan which his will disclosed ; and it certainly has been but a comparatively short time in which to complete arrangements whereby such a vast undertaking could be carried out with satisfaction to Oxford University, the countries participating, and the applicants. But it has been done, and the examinations were held a few weeks ago in which the candidates were given a preliminary "try-out" to assure the authorities at Oxford that the intellectual qualification was satisfied and that the candidate could enter the university. The credit for this remarkable feat of organization must be given to Dr. George R. Parkin, the general organizer of the work, who has visited all the countries interested, interviewed the educational authorities, and completed arrangements whereby every interest is conserved and every participating state or colony satisfied. Already the Scholar from the province of New Brunswick has been selected, and during the next few months we shall hear of the representatives of the different states preparing to leave for the historic university.

The qualifying examination recently held was not competitive, except in so far as failure to pass meant that the candidate could not be considered among the persons eligible for the scholarship. The subjects were selected from the time-honored groups of classics and mathematics, and we are reproducing some of the papers, that our readers may see how eminently fair the questions were. The time allowed for each paper was two hours.

LATIN PROSE COMPOSITION.

Translate into Latin :

The prince, who had already been informed of the conspiracy, sent messengers to all his allies to ask for reinforcements, and, as soon as he heard that these had set out, called together three hundred of the most distinguished citizens, pretending that he wished to consult them on the affairs of the republic. Orders were given that each, as he entered the palace, should be put to death, and a large force of cavalry was drawn up in the streets to prevent any danger of a popular tumult. But the people also were ready. During the whole day they had been quietly assembling in the houses waiting until the signal should be given ; suddenly there arose the cry "To arms," and, while some threw down stones and firebrands, the others rushed forth from the doors, dragged the soldiers from their horses and slew them before they had time to defend themselves. The attack was too violent to be resisted, and when the reinforcements arrived the city was in the hands of the populace.

GREEK AND LATIN GRAMMAR.

1. Give the meaning, gender, and dative plural of *οδοῦς*, *λεώς*, *γάλα*, *ὄρνις*, *κέλευθος*; and the meaning, gender, and genitive plural of *nummus*, *artus*, *dies*, *imber*, *calcar*.
2. Give the comparative and superlative of *νέος*, *ἄρπαξ*, *μακρός*; *vetus*, *utilis*, *prope*.
3. Decline, in the singular, *ὄξυς*, *δοσις*, *ἀληθής*; and in the plural, *melior*, *qui*, *idem*.
4. Distinguish between the uses of *αὐτός* and *ὁ αὐτός*, *ποσὸς ὅσος*, and *ὅσος*; *mille* and *millia*, *aliquis* and *quisquam*, *is* and *ille*.
5. State, with examples, the principal ways of forming the perfect tense in Greek and Latin.
6. Write down the third person, singular and plural, of the following tenses :
 Present subjunctive active of *δηλώω*.
 Aorist indicative active of *αἰρέω*.
 Aorist optative passive of *τίθημι*.
 Future indicative active of *capio*.
 Future perfect indicative active of *tribuo*.
 Imperfect subjunctive of *nolo*.
7. What prepositions in Latin and Greek may be used with *two* cases? Give examples and append to each its English equivalent.
8. State and illustrate—
a) The rules for conditional sentences in Greek.
b) The rules for the sequence of tenses in Latin.
9. Translate into Latin :
a) The consul left the city without saluting his colleague.
b) He is too wise to disobey his orders.
c) If you finish your work tomorrow, you will be allowed to return home.
d) I fear that he will not reach Italy in time to see his brother.
e) When he was at Athens, I told him to remain there until I came.
10. Put into *oratio obliqua* :

Quoniam me una vobiscum servare non possum vestrae quidem certe vitae propiciam quos cupiditate gloriae adductus in periculum deduxi. Frustra meae vitae subvenire conamini quem iam sanguis viresque deficiunt. Proinde hinc abite dum est facultas vosque ad legionem recipite.

The paper on "Translation from Latin into English" was rich in optional passages. There were twelve selections, of which the candidate must select one. He received no credit for translating more than the one passage, yet we doubt not there would likely be some who could not resist the temptation to make a display of the extraordinary knowledge which they supposed themselves to have. The first selections were from authors not specially prescribed, two extracts; from Cæsar, *De Bello Gallico*, I–IV, four extracts; from Cicero, *Philippics*, I, II, four extracts; from Cicero, *In Catilinam*, I–IV, and *In Verrem*, Actio I, five extracts; from Cicero, *Pro Murena* and *Pro Lege Manilia*, five extracts; from Cicero, *De Senectute* and *De Amicitia*, five extracts; from Horace, *Odes*, four extracts; from Horace, *Satires*, five extracts; from Horace, *Epistles*, five extracts; from Livy, V, VI, four extracts; from Virgil, *Georgics*, four extracts; from Virgil, *Bucolics* and *Æneid*, I–VI, a graded selection depending upon whether the extracts from the *Bucolics* were chosen.

The plan of the paper on "Translation from Greek into English" was the same, the passages being selected from authors not specially prescribed: from Demosthenes, *Philippics*, I-III, and *Olynthiacs*, I-III; Demosthenes, *De Corona*; Euripides, *Hecuba*, *Medea*, *Alcestis*, and *Bacchae*; Homer, *Iliad*, I-VI; Homer, *Odyssey*, I-VI; Plato, *Apology*, *Crito*; Sophocles, *Antigone* and *Ajax*; Xenophon, *Anabasis*, I-IV. The length of the passages depended somewhat upon the relative difficulty of the language of the author. In general, however, the length did not exceed seventy lines.

The papers on mathematics are interesting to us by the appearance of arithmetic as a college-entrance subject, and the indications on the geometry paper that Euclid undefined still holds sway at Oxford. These papers we reproduce.

ARITHMETIC.

1. Find the smallest integer which is divisible by all the numbers — 143, 78, 91, 637, 286.
2. Multiply 1.16 by .428571, and divide .007424 by 25.6.
3. If a man can build 1 rod 1 yard 1 foot 6 inches of a wall in one day, how much can he build in 52 days?
4. Find the square roots of 122.1025 and $538\frac{8}{5}$.
5. The par of exchange with London being 4.8665, find the equivalents of £137 4s. $6\frac{1}{2}$ d. and \$542.84 to the nearest cent and farthing respectively.
6. A walk 10 feet wide is made round a rectangular park within the fence, the park being 200 yards by 150 yards. How many square yards are there in the walk?
7. Two men of equal skill agreed to do a piece of work for \$124. They completed it in 18 days, but one man was absent from work on 5 days. How should the pay be equitably divided?
8. Find the amount of \$4,000 if lent for 3 years at $4\frac{1}{2}$ per cent. per annum compound interest.
9. Three pipes can respectively fill a cistern in 22, 24, and 72 minutes. If, when the cistern is empty, all the pipes are opened, in how many minutes will it be full?
10. A person invested \$22,050 in a three per cent. stock at 90. He afterwards sold out at $93\frac{1}{2}$ and invested the proceeds in a $4\frac{1}{2}$ per cent. stock at 98. Find the change in his income.
11. In what time will \$1,260 amount to \$1,496.25 if lent at $3\frac{3}{4}$ per cent. per annum simple interest?

ALGEBRA AND GEOMETRY.

ALGEBRA.

[The full working must be shown in all cases.]

1. If $x = 1$, $y = \frac{1}{2}$, $z = -\frac{1}{8}$, find the value of
$$\frac{y-z}{1+yz} + \frac{z-x}{1+zx} + \frac{x-y}{1+xy}.$$
2. Multiply $x^5 - 3x^3 + 2x - 1$ by $x^5 + 3x^3 - 2x + 1$, and verify the result in the case where $x = 2$.
3. Find the remainder when $x^3 + 5x^2 - 7x + 4$ is divided by $x^2 + x + 2$. For what value of x will the remainder be zero?

4. Resolve into their simplest real factors.

(1) $x^3 + 343y^3;$

(2) $a^2x^2 - 2ax - b^2x^2 + 2bx;$

(3) $x^4 + 4x^2 + 16.$

5. Simplify:

(1) $\frac{1}{x^2-3x+2} + \frac{1}{2x^2-5x+2} + \frac{1}{2x^2-3x+1};$

(2) $\frac{\left(\frac{x}{y} - 1 + \frac{y}{x}\right) \left(\frac{1}{y} + \frac{1}{x}\right)}{\frac{x^2}{y} + \frac{y^2}{x}}.$

6. Solve the equations:

(1) $\frac{1}{2x+3} + \frac{1}{2x-3} = \frac{1}{x-6};$

(2) $\frac{x-a}{b} + \frac{x-b}{a} = 2;$

(3) $10x - 18y = 45, 2x + 4 = y.$

7. Describe clearly the process of solving graphically two simultaneous equations of the first degree in two variables. How would you apply this process in the case of the equations given in question 6 (3)?

8. Find four consecutive odd numbers whose sum is 1,904.

9. A sum of \$4,950 is invested partly in Canadian Pacific Common Shares, paying 6 per cent., at 115, and partly in United States 4 per cent. Loan, at 132½. The total income being \$200, find the amount of each investment.

GEOMETRY.

[The use of reasonable symbols and abbreviations is permitted.]

1. Define right angle, rhombus, parallel straight lines.

2. If two angles of a triangle be equal to one another, the sides also which subtend, or are opposite to, the equal angles, shall be equal to one another.

3. If one side of a triangle be produced, the exterior angle shall be greater than either of the interior opposite angles.

4. If a straight line falling on two other straight lines make the exterior angle equal to the interior and opposite angle on the same side of the line, or make the interior angles on the same side together equal to two right angles, the two straight lines shall be parallel to one another.

5. The opposite sides and angles of a parallelogram are equal to one another, and the diameter bisects the parallelogram, that is, divides it into two equal parts.

6. If the square described on one of the sides of a triangle be equal to the squares described on the other two sides of it, the angle contained by these two sides is a right angle.

7. If a straight line be divided into any two parts, the square on the whole line is equal to the squares on the two parts, together with twice the rectangle contained by the two parts.

8. Divide a given straight line into two parts, so that the rectangle contained by the whole and one of the parts may be equal to the square on the other part.

Dr. Parkin said, in an interview, that the American who wishes a technical education should not go to Oxford, that the graduates of the University

do not receive a professional but a classical training; and he added with great pertinence: "Longfellow, Hay, and President Eliot, men of classical education, are just as important in this country as Mr. Rockefeller and Mr. Carnegie. . . . America has become a world-power, and she needs men with the world-knowledge that Oxford can give them." There will be ninety-six Scholars from North America chosen for intellectual and athletic ability and force of character. Already in the Oxford manner they have had a nickname given them and will probably be dubbed "Cæcilians."

THE high schools for girls in England, just as in Germany, have had to take the curriculum of the schools for boys as a basis, and effect some sort of a compromise between that and the general type of curriculum in the older-fashioned girls' schools. Hence we find that in these high schools the time is divided pretty fairly among the three groups of studies: the English humanities (literature, history, etc.); languages; science, including mathematics. History and literature generally form the center of the curriculum—a very wise method which might be adopted with advantage in our schools; the Bible is included in this department. French has a strong hold upon these schools, not only from tradition, but also from the fact that with the improvement in methods of teaching, the training in linguistics, grammar, and in accuracy, reasoning, and judgment given through it, is as valuable as that given through Latin. The place of Latin is, of course, secure, but the teachers of it no longer view the teaching of other languages with the same complacency and almost contempt. They are now concerned with retaining the hold of their subject, and therefore are fighting hard for life. The activity of the teachers of classics during the past decade is remarkable, and not even in the teaching of English has greater enthusiasm prevailed and greater progress been made. The most useful and effective science in these schools has been found to be nature study, and especially botany; chemistry and physics appeal to but few girls, and therefore are generally classed among the optional studies. In looking over some of the curricula, it is interesting to notice that mathematics does not occupy as prominent a place as in the schools for boys. The wisdom of this is apparent to those who have taught this subject to girls, but of course provision is made among the optional studies for those who wish to study higher mathematics. It would not do to exclude from the pursuit of the higher branches of mathematics and science the few girls who show a decided taste for these studies and who are especially gifted. Girls in these more austere subjects, in which we do not look for special excellence in their sex, are much like the nursery rhyme of the little girl who had a little curl right down in the middle of her forehead:

When she was good, she was very, very good;
And when she was bad, she was horrid.

The Manchester High School for Girls is a very good example of a city

school. It has a six-year course of study, the girls entering at about twelve years of age and graduating at eighteen. The school hours are from 9 to 1 o'clock five days a week, with fifteen minutes' recess in the middle of the morning. Afternoon work is optional, and while pupils (unless delicate or living at a distance) are advised to take one or two afternoon subjects, no girl is allowed to have lessons every afternoon. The work of these afternoons includes such subjects as: practical chemistry, practical botany, Greek, gymnastics, sewing, singing, drawing, household needlework, or preparation of lessons under guidance. The afternoon work does not begin until half-past 2 o'clock and does not continue beyond 4 o'clock. The following plan of the curriculum will be of interest to our many readers who are thinking of the great problem of providing suitable mental environment for girls as well as for boys during the secondary school period.

THE MANCHESTER HIGH SCHOOL FOR GIRLS (TWELVE TO EIGHTEEN YEARS OF AGE).

I Age, 12-13	II Age, 13-14	III Age, 14-15	IV Age, 15-16	V Age, 16-17	VI Age, 17-18
HUMANITIES: History, Geography, Literature, etc. 8	Same as I.	Ancient History, English History, Geography, Literature, etc. 8	General European and English History, Geography, Literature, etc. 8 (4 periods compulsory, 4 periods optional)	English Literature and History, 4 Mathematics, Algebra, and Geometry, 4 One Foreign Language, 4 (all compulsory)	
LANGUAGES: French, German or Latin. 8	Same as I. 8	French 3 Latin or German, 4	Latin 4 German 4 French 4 Greek 4 (one compulsory)	Specialization in Languages.	
SCIENCE: Arithmetic, Elementary Geometry, Elementary Physics, . . 8	Arithmetic, Geometry, and Algebra; Nature Study, . . . 8	Mathematics, Physics, and Chemistry, . . 7 Nature Study, 2	Mathematics, 5 (compulsory) Physics, Chemistry, Botany, etc. (one compulsory, the rest optional)	Specialization in Science and Mathematics.	

Figures denote minimum number of lesson periods per week; total, 24. Physical training and one branch of handwork compulsory throughout.

If a stranger were to ask of the teaching profession today what has been the most significant movement in teaching during the past two or three years, the reply might with truth be made that it is the awakening among the teachers of mathematics. It did not come in a moment; we have had indications now in one place and now in another; but the clarion call came when Professor John Perry, of the Royal College of Science of London, read his famous paper before the joint

THE AWAKENING
AMONG THE
MATHEMATICIANS.

meeting of the section of mathematics and physics, and the newly organized section in education, of the British Association for the Advancement of Science. This paper provoked much discussion, and resulted in a committee being formed "to report upon improvements that might be effected in the teaching of mathematics, in the first instance in the teaching of elementary mathematics, and upon such means as they think likely to effect such improvements." This was in 1901, and on this side of the water the address found a ready and willing audience. The most noteworthy deliverance was the significant and scholarly address of Professor Eliakim Moore, of the University of Chicago, in his capacity as President of the American Mathematical Society, in 1902.¹ It seemed as if in the working out of his theme, "Pure and Applied Mathematics," he became more and more convinced of the possibilities that had hitherto been neglected, and so he organized a seminar to study out the problems thoroughly. The Central Association of Teachers of Science and Mathematics is a very strong and representative body in the middle West, and at once indicated its interest in this work. Out of this enthusiasm grew a small journal called the *Mathematical Supplement of School Science*, edited by Professor George W. Myers, of the School of Education of the University of Chicago. This modest little journal, with the top-heavy name, received so much encouragement that Mr. Myers has enlarged it, and under its new name, *School Mathematics*, we welcome this latest American recruit to educational journalism. It will appear five times a year (for many years we hope), and the initial number shows a solidity and a comprehensiveness that indicate a very helpful magazine for teachers of mathematics.

DR. OTTO W. BEYER, of the University of Leipsic, has recently published a very interesting article in which he makes clear the position of the commercial schools in the educational system of Germany. We certainly owe him a debt of gratitude, for so many of our writers upon this subject present such conflicting statements that the discussion of this important subject has been seriously hampered. There are at present four commercial colleges, situated respectively, in Leipsic, Aix-la-Chapelle, Cölogne, and Frankfort. The Leipsic school avails itself of the educational advantages of the university, and that of Aix-la-Chapelle of those offered by the technical college of the town. The Cologne and Frankfort schools are not connected with any other institutions. This last named school bears the formidable title "Academy for Social and Commercial Branches of Knowledge." The number of matriculated students in these colleges is at present 800. There are occasional students and visitors, who at Cologne last winter numbered 1271. They are drawn chiefly from the business classes, thus affording another instance of the truth of that twentieth-century business maxim, "Education is necessary for business." Dr. Beyer

¹ This address was printed in full in the SCHOOL REVIEW, June, 1903.

says that there is a certain vagueness as to the value of the education offered by these schools. If this is felt in Germany, which has been experimenting so long and under such favorable circumstances, we are encouraged to think that the situation with us, which sometimes seems almost hopeless, may yet be settled so that the contributing part of commercial education may be apparent. Dr. Beyer strikes at the root of the matter when he says that the spirit that rules in them must decide their character, and that if the schools of commerce wish to take their place among the older German colleges, it must be by the unfettered spirit of scientific method. This spirit is fortunately to be found in most of them, for they do not aim at providing direct preparation for bread-winning, but at being places of higher intellectual education after the fashion of a university. They are not ruled by a spirit of utilitarianism, but they desire to provide a general tertiary education, and also to offer means for obtaining special technical instruction. They aim, therefore, not only to advance knowledge, but also to translate thought into action.

The organization of these schools presents certain interesting features which at once indicate that the students are persons of some maturity. Academic liberty, liberty in teaching for the professors, liberty in learning for the students, is essential in a school of this kind. The professor is free to lecture, the student is under no compulsion to attend his lectures. Each student chooses the lecturer with whom he wishes to work, and enjoys a fair share of self-government. The tutors have to pass through fixed grades in regard to their teaching efficiency; as at the university, the teachers who hold the highest positions are given time for research. The lectures on such subjects as political economy, law, insurance, history of literature, follow the lines of those given at other colleges. There also special lectures on scientific commercial methods.

It is somewhat strange to hear German teachers complaining about unevenness of preparation in their students, as the entrances to the various schools and colleges in that country are so carefully guarded. However, in these commercial schools there was an exception made because of the nature of the subject of instruction, and so there are two methods of admissions. The graduate of a *Gymnasium*, a *Real-Gymnasium* or an *Ober-Realschule* is admitted at once as having completed a nine-year secondary-school course. The graduate of a *Realschule*—a six-year course—is admitted if he has completed his apprenticeship either as a secondary or an elementary teacher, having passed the second teachers' examination. The tendency is to recognize the standard of the *Gymnasium* graduate—which, of course, makes the commercial college of true university rank. A diploma is given at the end of a two-year course of study, but to be of full academical worth the examination, as a rule, can be taken only after a three or four-year course.

THERE is probably no department of education about which so little is really known, and in discussing which so much oratory is wasted, as that of

commercial education. The member of the school board plays to his gallery by insisting upon commercial education in the high school. His idea of that subject is probably commercial arithmetic (whatever that is), bookkeeping, and perhaps stenography and typewriting. If these are taught to the immature graduate of our grammar schools, he is getting a "practical" education. "Practical" here certainly does not mean "useful," for the product of such a training at such an age is not marketable today. In our larger schools there is an attempt made to organize a commercial course of study, and it is becoming more successful as its advocates realize that the longer these practical subjects are postponed, the more likely will the course be a success. Again, the movement has been carried still farther, and commercial high schools are being established. The school board of Chicago has just authorized the building of one in that city, and has wisely given permission to Mr. Cooley, the superintendent of schools to go abroad and see what is being done in Germany, in England, and in France. The results of his trip and his recommendations will be awaited with great interest, for Mr. Cooley is a discriminating observer and will not be carried away by any foreign methods which, while successful in their respective countries, may not bear transplanting to America.

THE agitation concerning the "Greek question" which has lasted for nearly two years has been calmed for a time by the vote in the meeting of the Congregation, by which it was ordered that a statute be prepared allowing candidates for honors in natural science or mathematics to be relieved from the necessity of passing an examination in Greek. This is the first victory of the reformers in either of the great English universities, and the moral effect is even greater than the immediate advantage.

Another change which has a special interest for us is the passing of the statute by which facilities are afforded to students from foreign universities to complete their studies at Oxford and to graduate without having to go through the whole Oxford course from the beginning. Students who have resided two years elsewhere and reached a certain standard in the examinations incident to the course are exempted from Responsions and require only two years' residence at Oxford for an honor degree, and three years' for a pass degree. As this statute was passed prior to the vote on Greek, there is incorporated a requirement that the student shall have a knowledge of Greek equivalent to that required of the candidate for the Responsions examination.